

2014-09-04 day 7

more calculus / AP Computer Science videos available

does not exist

→ I follow the definition and don't get an ANSWER

undefined

→ I follow the definition &amp; this is not part of it.

\*  $\frac{7}{0}$  has  
[no defn  
that consistent]

\* function values are either defined or undefined

indeterminate

it is possible to define these in so many ways, we can't agree and could never be consistent

 $0^0$ 

$$\frac{0}{0} = 1$$

$$\frac{0}{0} = 7$$

$$\frac{12}{4} = 3$$

$$4 \cdot 3 = 12 \checkmark$$

$$\frac{0}{0} = 3$$

$$\frac{0}{0} = 13$$

$$\frac{0}{0} = 8$$

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# "The Unreasonable Effectiveness of Mathematics"

~ Eugene Wigner

complex #s

$\{a+bi\}$   $\{a, b \text{ are real \#s}\}$

started with  $i = \sqrt{-1}$

"imaginary"

Light, all electromagnetic radiation can be modeled by 4 equations.

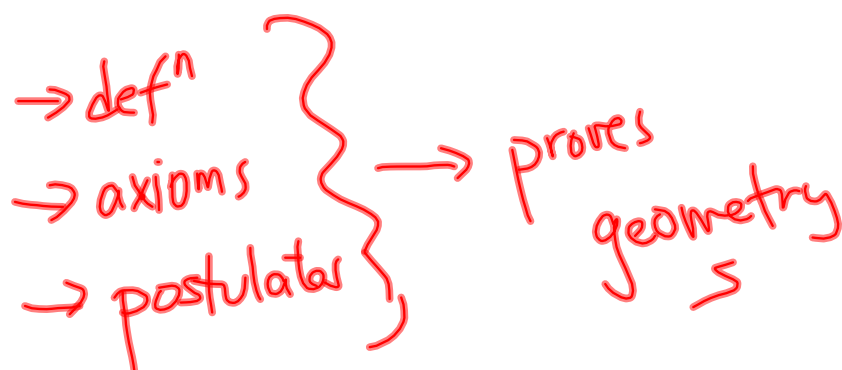
these equations have no solutions in real #s,

but are solved using complex #s

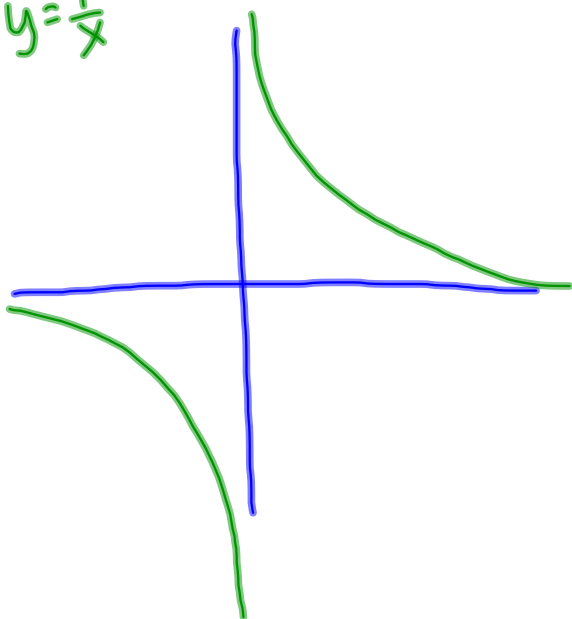
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↓ postulate

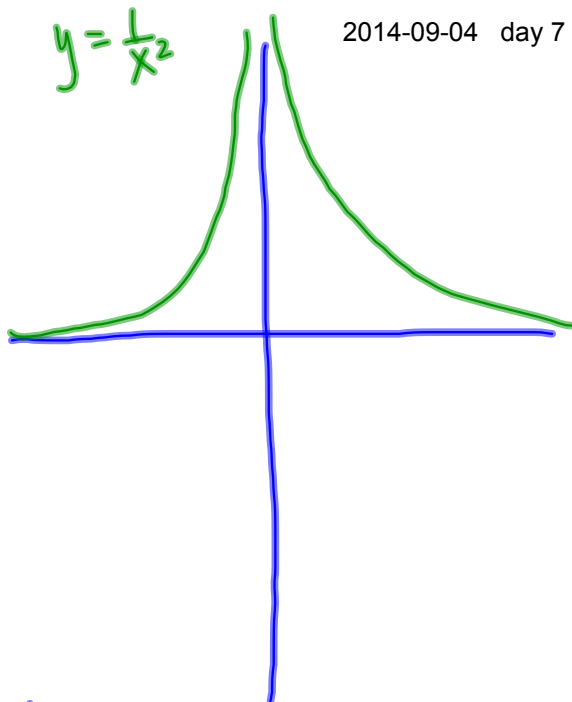
Euclid, "Elements"



$$y = \frac{1}{x}$$



$$y = \frac{1}{x^2}$$

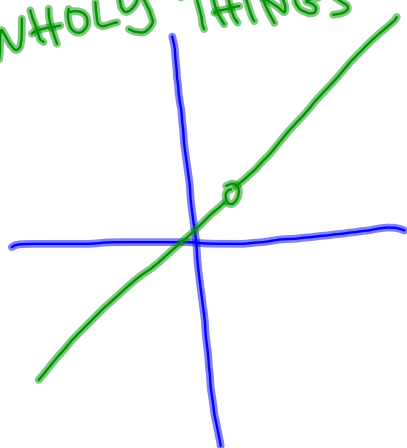


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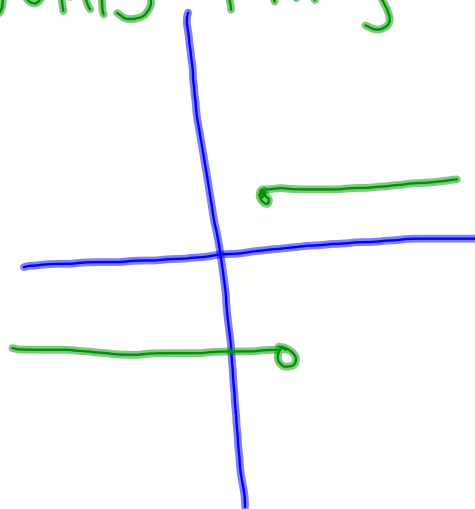
A LIMIT is a  $y$  value.

A LIMIT "exists" if it equals a number.  
 WHEN we say a limit 'approaches'  $+\infty$  or  $-\infty$ ,  
 we mean that the limit does NOT approach  
 a number, but it (the limit) is undefined  
 in a very particular way.

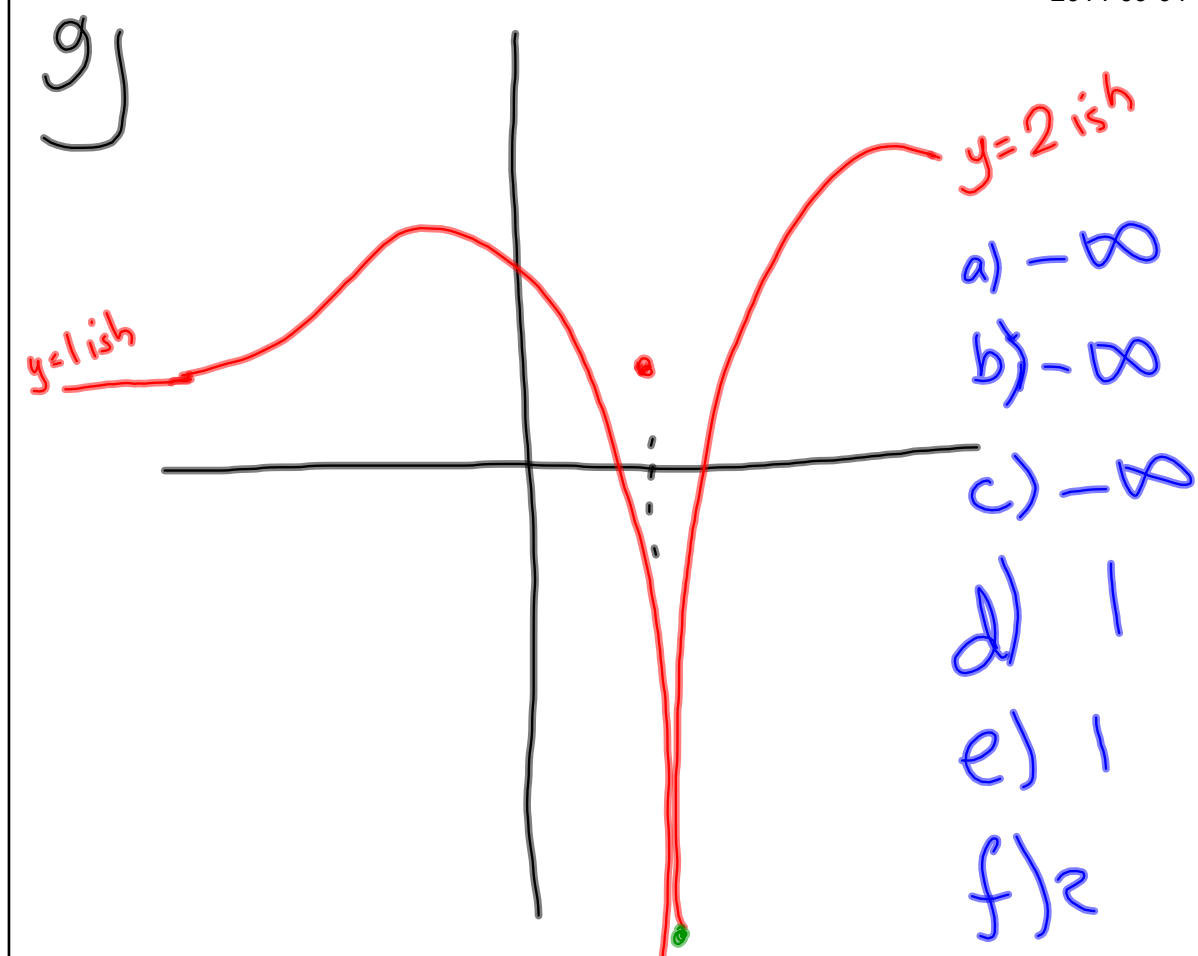
WHOLEY THINGS



Jumpy things

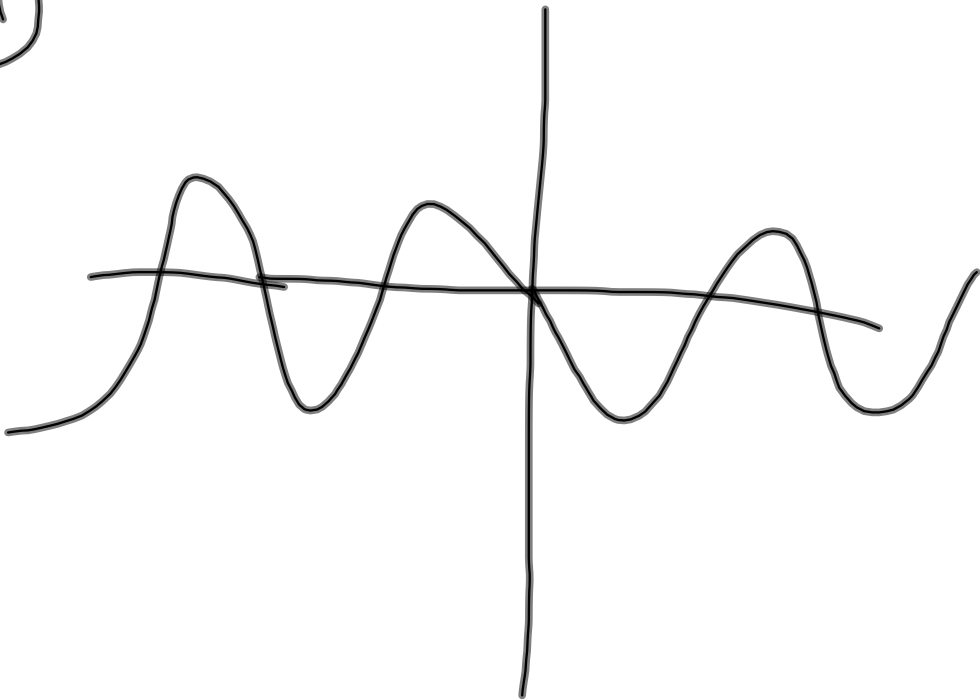


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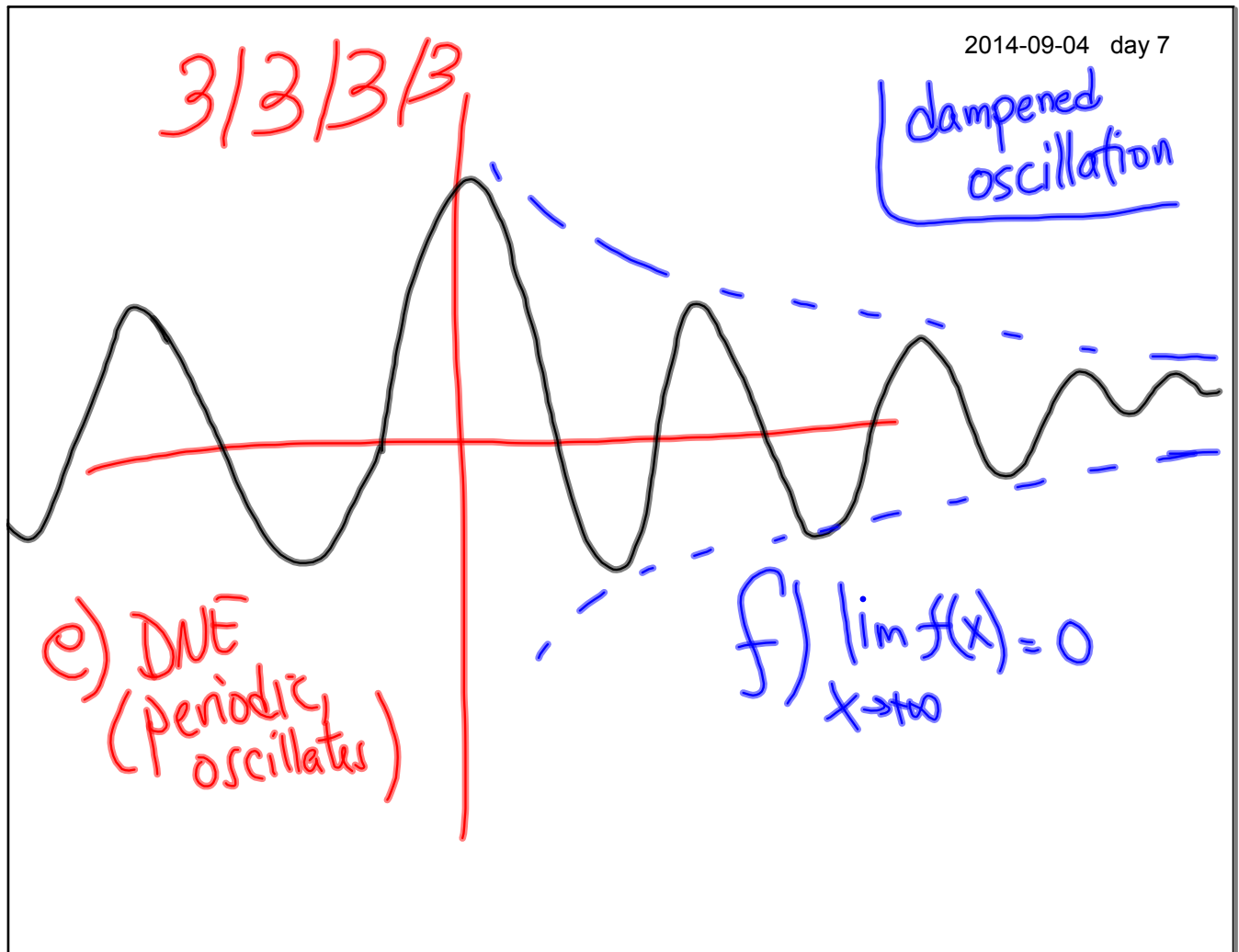


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11)

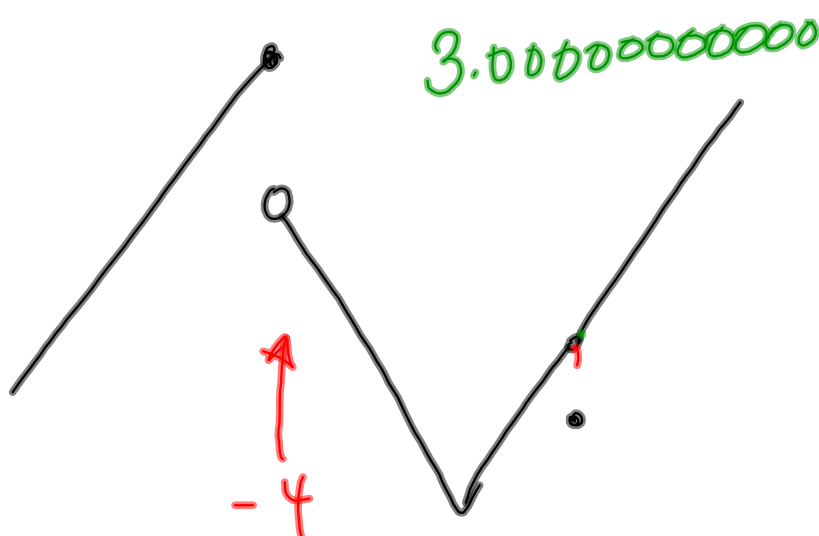


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(13)



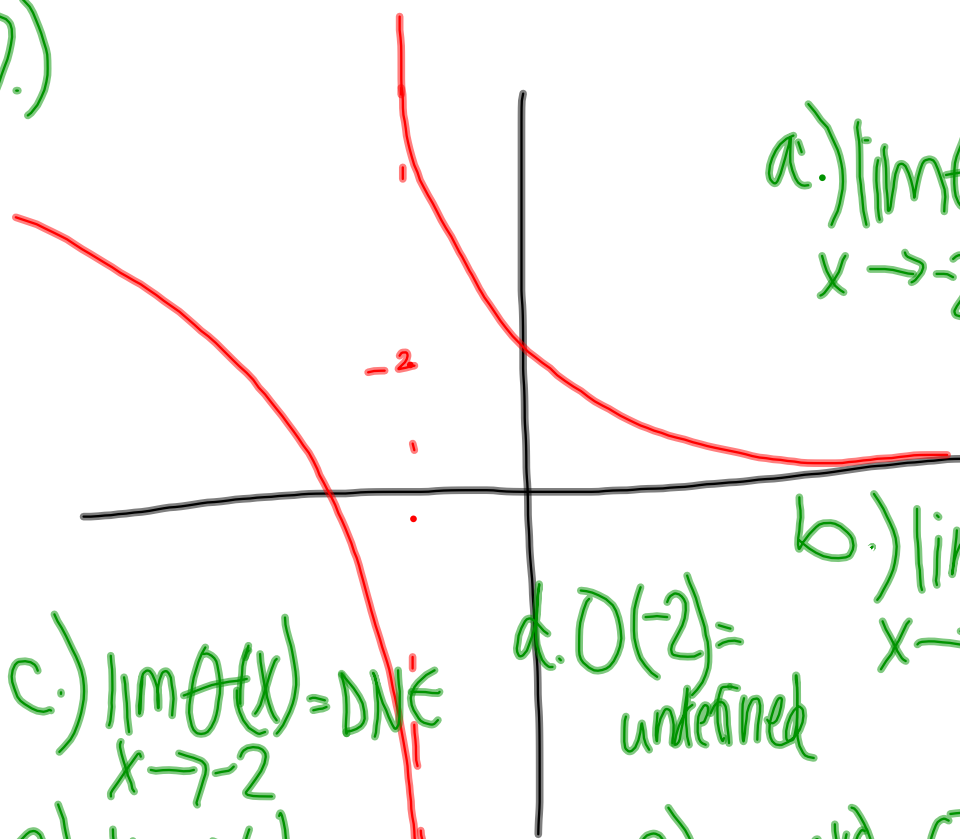
lim exist?

ALL Real #s except  $x = -4$ .



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7.)



$$a.) \lim_{x \rightarrow -2^-} \theta(x) = -\infty$$

$$b.) \lim_{x \rightarrow -2^+} \theta(x) = \infty$$

$$d.) \theta(-2) = \text{undefined}$$

$$c.) \lim_{x \rightarrow -2} \theta(x) = \text{DNE}$$

$$e.) \lim_{x \rightarrow -\infty} \theta(x) = \infty$$

$$f.) \lim_{x \rightarrow \infty} \theta(x) = 0$$

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section 2.1	name
0	Main Ideas
	Important Examples
0	
	Things to watch out for
0	